to 19 (average 12.6 years). All the patients had their salivary glands involved, in most cases gl. parotis (alone or together with gl. submaxillaris). All the patients, except two, had a fever (average 2.4 days). The urine amylase was elevated in 63.6% cases. All the patients recovered. Most of them had leukopenia or normocytosis with a moderate increase in ESR.

Conclusions: During the mumps outbreak 30.7% of the vaccinated students fell ill. The form of the disease both for the vaccinated and nonvaccinated patients was easy.

Epidemiology of opportunistic infections in AIDS patients

P1454 Endogenous *S. aureus* Recolonizes the Nares of HIV-infected Patients after Mupirocin Treatment

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Background: Nasal carriage of *S. aureus* has been associated with an increased risk of infection. Temporary eradication can be achieved with intranasal mupirocin.

Objective: To determine the source of recurrent *S. aureus* colonization following mupirocin treatment in HIV+ patients.

Methods: Subjects were enrolled in a randomized, triple-blind clinical trial of mupirocin treatment (2% ointment/d for 5 days) of HIV-infected patients with persistant *S. aureus* nasal carriage. Nares were cultured at baseline and 1, 2, 6, and 10 weeks post-treatment. Recurrent isolates (after initial eradication) were compared with pre-treatment isolates. Mupirocin sensitivity and PFGE of restriction fragments obtained after *Sma*I and *Ksp*I digestion were performed on all isolates.

Results: Nare cultures were negative at one or more follow-up visit in 34 of 38 (85.3%) patients who received mupirocin. Recurrent colonization was not associated with the development of mupirocin resistance. Post-treatment cultures were positive in 14.7% at week 1; 37.5% at week 2; 58.1% at week 6, and 73.5% at week 10. In 20/23 recurrent cases, the pre- and post-treatment isolates represented the same clone. In 5 of these, the follow-up DNA profiles differed from the original clone in 2–3 bands, changes attributable to genetic events affecting a single restriction site. Three patients acquired a new clone. Two patients did not respond to treatment and remained colonised with their initial clone.

Conclusions: In this HIV-infected population, recurrence of *S. aureus* after mupirocin treatment was mainly due to recolonisation with the initial strain and was not associated with drug resistance. Long term eradication was compromised by the patients' own flora. Single genetic events affecting the fingerprints were frequent even during this relatively short period of observation.

P1455 Bacteremia and Fungemia in HIV-Infected Hospitalized Patients

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Objective: To assess the spectrum of bacterial and fungal pathogens responsible for disseminated infection in HIV-infected patients (p).

Methods: During a 6-year period, 4682 blood cultures were performed to identify bacteria, fungi and mycobacteria in HIV-infected hospitalized p, suffering from suspected disseminated infection: 851 (18.2%) tested positive, leading to the isolation of 778 bacteria and fungi in 709 different p (mycobacteria were excluded from this study).

Results: Among the 748 identified bacteria, gram-positive microorganisms largely predominated (580 isolates: 77.5%), while gram-negative accounted for the 18.6% of isolates, and anaerobes for the 3.9%. In particular, catalase-positive cocci represented the great majority of gram-positive bacteria (513 strains): *Staph. aureus* in 42 cases, *S. epidermis* in 246, other coagulase-negative staphylococci in 131, *Corynebacterium* sp. in 39, *Micrococcus* sp. in 38, *Bacillus* sp. in 10, and *Rhodococcus equi* in 7 p), while catalase-negative cocci were isolated in 67 cases (*Enterococcus faecalis* in 29, *E. faecium* in 5, *Str. pneumoniae* in 9, and *Streptococcus* sp. in 24 p). Among gram-negative agents, enterobacteriaceae were isolated in 59 cases (group D salmonellae in 30, group B/C salmonellae in 6, *Escherichia coli* in 12, *Serratia marcescens* in 8, *Enterobacter* sp. in 2, and *Klebsiella pneumoniae* in 1 p), oxidase-negative bacilli in 46 cases (*Xantomonas maltophilia* in 40, *Xantomonas* sp. in 1, and *Acinetobacter* sp. in 5 p), and oxidase-positive bacilli in the remaining 34 cases (*Pseudomonas aeruginosa* in 16, *Pseudomonas* sp. in 7, *Alcaligenes* sp. in 5, *Flavibacterium* sp. in 3, and other bacteria in 3 p). Anaerobic bacteria were cultured in 29 cases (*Propionibacterium acnes* in 26, *Bacteroides* sp. in 2, and *Fusobacterium* sp. in the remaining p). Finally, fungemia (30 cases on the whole) was caused by *Cryptococcus neoformans* in 25 p, *Candida albicans* in 4, and *C. norvegensis* in the remaining p. *Discussion:* The episodes of bacteremia and fungemia affecting p with HIV disease present a broad etiological spectrum. Gram-positive bacteria prove to be the most frequent agents, with coagulase-negative staphylococci, enterococci, and *Rhodococcus equi* as emerging pathogens. Among gram-negative organisms, an elevated frequency of *Salmonella* and *Pseudomonas* sp. is observed, while an increasing incidence of *Xantomonas* and *Serratia* sp. is recorded. Opportunistic yeasts (mostly *C. neoformans*) are responsible of all cases of fungemia. An estimate of the etiological spectrum of disseminated infection complicating advanced HIV disease may represent an useful reference in order to plan empiric antimicrobial treatment of presumed bacterial or fungal sepsis in HIV-infected p.

P1456 Xanthomonas maltophilia Infection in the Setting of HIV Disease

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Objective: To evaluate the frequency and significance of *Xanthomonas maltopilia (Xm)* complications in HIV-infected patients (p).

Methods: A retrospective review of clinical records of nearly 2000 HIV-infected p followed since 1991 was performed to identify *Xm* infections, and to evaluate their occurrence and outcome according to several epidemiological, clinical, and laboratory variables.

Results: As a whole, 54 episodes of *Xm* infection occurred in 52 p out of 2000 (~2.6%): 38 males and 14 females, aged 21–54 years (25 ex-i.v. drug users, 15 heterosexuals and 12 homosexuals). Pathogens were isolated from blood cultures in most cases (44 episodes), and from BAL or respiratory secretions (5), urine (2), pharyngeal swab (2), and lymph node biopsy (1). *Xm* represented the fourth most common etiological agent of bacteremia in our series, behind *Staphylococcus aureus, S. epidermidis* and coagulase-negative staphylococci (44 cases of 781: 5.6%). Fourteen episodes of 54 occurred as polymicrobial infections, with staphylococci, *Pseudomonas aeruginosa* and

salmonellae as the most common associated pathogens. Only 13 of 54 episodes of *Xm* infection (24.1%) were community-acquired, whereas most cases were detected after the third day of hospitalization; in one p a concomitant colonization of an indwelling central i.v. catheter was seen. *Xm* infections were related to a deep immunodeficiency, characterized by a mean CD4 cell count of 67.1 ± 23.9/μl, (with 37 episodes of 54 associated with a CD4 count <50/μL). Leukopenia-neutropenia (WBC <1500/μL and/or neutrophils <1000/μL) were present in 24 out of 54 episodes (44.4%), and 34 p of 52 (65.4%) had a previous diagnosis of AIDS. On the other hand, no significant difference was found when stratifying p according to age, sex, or type of risk for HIV infection. *Xm* isolates showed high resistance levels against a large spectrum of antibiotics: >80 of strains tested resistant against ampicillin, mezlocillin, aztreonam, imipenem, first- and second-generation cephalosporins and aminoglycosides, while a sensitivity ≥60% was shown by piperacillin, ticarcillin-clavulanate, ceftazidime, quinolones and cotrimoxazole. An appropriate i.v. chemotherapy was carried out in all p with *Xm* infection, mostly with third-generation cephalosporins (36 p), piperacillin (10), or quinolones (6), alone or associated with aminoglycosides or cotrimoxazole, obtaining clinical and microbiological cure in 51 cases of 54 (94.4%) after 7.8 ± 3.4 days, while in the remaining 3 episodes of *Xm* sepsis, occurring in p with a CD4 count of 5–30/μL and a WBC count of 800–1550/μL, this infection contributed to death. Two p suffered from a relapse of *Xm* infection, occurred after 1–2 months. *Discussion: Xm* is an emerging nosocomial pathogen in immunocompromised p, but very limited informations are available about its clinical role in the setting of HIV infection, with only a few cases of bacteremia and localized infection reported until now. In our series, *Xm* complications presented remarkable frequency and severity, not previously recognized to the same extent. *Xm* infection seemed to show a broad clinical spectrum, an increasing risk according to the progression of HIV disease, and a frequent association with other HIV-related complications. When some adjunctive risk factors are present (far advanced immunodeficiency, leukopenia-neutropenia, hospitalization and instrumentation), *Xm* should be regarded as a potentially life-threatening pathogen, because of its tendency to cause disseminated disease and its frequent multiple antibiotic resistance.

P1457 *Bordetella bronchiseptica*: A Recently Recognized Opportunistic Agent in AIDS

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Objective: To review four cases of *Bordetella bronchiseptica* respiratory tract infections that occurred in patients with AIDS seen at our hospital in the past three years, with a focus on clinical characteristics, and pattern of antimicrobial susceptibility.

Methods: Patients with *B. bronchiseptica* infection at the Sant'Orsola University Hospital were identified through a retrospective review of microbiology records from 1994 through 1996; clinical data were obtained by subsequent chart review.

Results: For the 3-year study period, 4 isolates from respiratory tract specimens were identified. All four patients were males, and had underlying HIV disease; three patients were homosexuals, and one was intravenous drug user. Fever (temperature, >38.5°C), weight loss, dyspnea, and cough were common symptoms. One patient presented with a prolonged paroximal cough resembling pertussis. Chest radiography revealed normal findings for only one patient, parenchymal changes for two patients, and increased bronchovascular markings in one patient. The risk of exposure to *B. bronchiseptica* from dog contact has been hypotesized for one patient. Susceptibility testing was performed for isolates from all the four patients. All were resistant to *aztreonam*, and susceptible to *imipenem, meziocillin, piperacillin,* and *ticarcillin/clavulanate*. Three of four isolates tested were susceptible to *ciprofloxacin, gentamycin, amikacin,* and *tobramycin*. Two isolates had high level resistance to *ceftazidime,* and one isolate had intermediate susceptibility to *ceftazidime*. One isolate displayed low-level resistance to *amikacin, gentamycin,* and *tobramycin,* and high level resistance to *aztreonam, ceftazidime,* and *ciprofloxacin*. Different antimicrobial regimens were prescribed in all cases. None of these four patients died, but many had severe disease.

Conclusion: *B. bronchiseptica* is noted primarily as a veterinary pathogen, and it is generally considered an organism of low pathogenicity in clinical settings, yet in recent years a number of sporadic reports of human disease caused by this bacterium have been described, especially as opportunistic respiratory complications among patients with AIDS. Although previously anecdotal reports have described successful treatment with ciprofloxacin, the optimal choice and duration of antibiotic therapy are not known.

P1458 Penicillin-Resistant Pneumococci in AIDS

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Objective: To describe the emergence of infections caused by *Streptococcus pneumoniae* with decreased susceptibility to penicillin and to verify the presence of multiresistant *S. pneumoniae* in patients with HIV disease attending one AIDS clinic.

Methods: Prompted by several reports of severe drug-resistant *S. pneumoniae* infections, we initiated surveillance for AIDS patients with serious drug-resistant pneumococci disease in 1989.

We have performed a retrospective review of the records of all hospitalized patients from whom pneumococcal isolates had been recovered between 1989 and 1995. Initial testing for penicillin resistance was performed using the 1 μg oxacillin disks. Susceptibility testing against selected agents were performed with use of the agar dilution method, in accordance with the methods of the NCCLS. The following antibiotics were tested: *ampicillin, cephalotin, clindamycin, erythromycin, piperacillin, tetracycline,* and *cotrimoxazole*. The criteria for determining the MICs of *penicillin G* were as follows: <0.06 μg/ml, susceptible; 0.12 to 1 μg/ml, intermediately resistant; >2 μg/ml, highly resistant. Pneumococci were defined as multiply resistant to antibiotics if they were resistant to three or more different antibimicrobial agents.

Results: Fourty-five consecutive clinical isolates of *S. pneumoniae* were collected during the study period. Twenty-eight strains were isolated from sputum, ten from blood, five from BAL, and two from ear. The majority of strains were susceptible to *ampicillin, piperacillin,* and *cephalotin*. Of the 45 isolates, 37% were shown to have an intermediate susceptibility to *penicillin G;* however none of the isolates were classified as highly resistant. In addition, 49% of the strains were resistant to cotrimoxazole, 15% were resistant to tetracycline, 5% were resistant to *erythromycin,* and 5% were resistant to *clindamycin*. The percentages of pneumococci intermediately resistant to *clindamycin,* and to *erythromycin* were 20% and 7%, respectively. It was notable that 60% of the intermediately resistant strains to *penicillin* showed a decreased susceptibility to multiple antimicrobial agents.

Conclusion: This study suggests that relative resistance to *penicillin* and resistance to multiple antimicrobial drugs is emerging as a priority for clinicians caring patients with AIDS in our hospital. Awareness of the increasing frequency of *S. pneumoniae* resistance to *penicillin, cotrimoxazole, tetracycline, erythromycin* and *clindamycin,* is important in the choice of an appropriate antimicrobial treatment in immunocompromised patients. We stress that the control of infections related to pneumococci with multiple resistance to antibiotics, and more rational use of antibiotics may limit the spread of these strains.

P1459 Is the Epidemiology of Kaposi's Sarcoma in HIV Changing?

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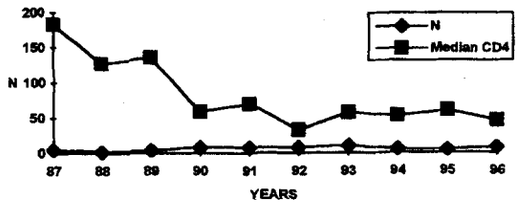
Objective: to assess if Kaposi's sarcoma (KS) epidemiology among HIV+ patients is changing.

Methods: from 01/87 to 11/96, every case of KS diagnosed and confirmed by biopsy was analyzed regard sex, age, CDC stage at diagnosis, CD4+ cell count. Finally, we evaluated epidemiological trend of KS during our observation period.

Results: overall we saw 1380 HIV+ patients. Out of them, 66 (4.8%) had KS (males: 64, females: 2); median age: 38 yr (R.: 21–65). At diagnosis, the median CD4+ cell count was 66.5/μL (R.: 1–508). In 46/66 (69.7%) cases KS was the first AIDS defining event (21 group II CDC, 7 group III, 18 group IVC2 CDC). In these patients the median CD4+ cell count was 100/μL (R. 1–508); in the remaining patients it was 54/μL (R.: 11–179).



In our study population, t Student's test showed no significant difference at onset of KS regard to CD4+ mean count, incidence and mean age from 87 through 96.

Conclusions: the epidemiology of KS seems to be unchanged.

P1460 HIV Unrelated Malignancies Among HIV Infected Patients

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Objective: to perform a retrospective study about prevalence and type of HIV unrelated malignancies among HIV+ patients.

Methods: we reviewed all cases of HIV unrelated malignancies diagnosed and histologically confirmed from 1/87 until 11/96 among HIV infected patients admitted to our Institute.

Results: overall we saw 1380 HIV+ patients. Out of them we diagnosed 21 (1.5%) cases of malignant tumor other than AIDS defining malignancies [18 M, 3 F; median age: 42 years (R.: 22–71); median CD4+ cell count: 307/μL (37–660); risk: 10 IDUs, 6 heterosexual, 4 homosexual men, 1 blood recipient; 12 group II CDC, 4 group III CDC, 3 group IVC2 CDC, 2 group IVC1 CDC]. The tumor types are shown in the table.

Type of cancer	n	(%)	(%) among HIV+
Hodgkin's disease	7	33.3	0.51
Lung cancer	4	19	0.29
Gastric cancer	2	9.5	0.14
Colon-rectal cancer	2	9.5	0.14
Prostate cancer	2	9.5	0.14
Anal skin cancer	1	4.8	0.07
Multiple myeloma	1	4.8	0.07
ALL	1	4.8	0.07
HCC	1	4.8	0.07

Eleven patients (52.4%) died from tumor.

Conclusion: Our data seem to demonstrate that HIV unrelated malignancies are rare among HIV infected patients likely because of younger age.

P1461 Cardiovascular Abnormalities in HIV Infected Patients in Yaounde Cameroon

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Objectives: To study cardiovascular abnormalities in HIV infection and their relationship to the immunological status of patients.

Methods: In a cross sectional descriptive study of 75 patients referred to CHU Yaounde for HIV testing (HIV 1, including sero type 0, and HIV 2; using ELISA and Western Blot), 54 patients were seropositive of which 30 had AIDS according to the WHO Bangui criteria and 21 were seronegative. After clinical appraisal, ECG and cardiac ultrasound examinations were performed, and cardiovascular autonomic function (CAF) assessed. Lymphocyte immunophenotyping (CD3; CD4; CD8;) was performed by flow cytometry on all HIV+ve patients. Data were analysed using Students T test; Chi squared with Yates correction and ANOVA.

Results: Sinus tachycardia, arrhythmias and non specific T wave changes were more frequent in AIDS patients. There was a highly significant difference in CAF between HIV(+) and HIV(−) patients ($p < 0.001$). Of the AIDS patients only one had normal CAF, where as no HIV(−) patient had autonomic dysfunction. Pericardial effusion did not appear to influence CAF. Echocardiography showed dilated cardiomyopathy (DCM) in 7 patients with AIDS; 1 HIV(+) patient, but none in the HIV(−) group. The mean CD4 count was 142 ± 67 in patients with DCM and 231 ± 191 in those without DCM. Pericardial disease was present in 15 patients with AIDS, 7 HIV(+) and 5 HIV(−) patients.

Conclusion: DCM, and abnormal cardiovascular autonomic function were all significantly higher in AIDS patients than HIV(+) non AIDS and HIV(−) patients, and were associated with lower CD4 counts.

P1462 Incidence and Prevalence of Rare HIV-Associated Diseases (RD) in the Swiss HIV Cohort Study (SHCS) between 1989 and 1994

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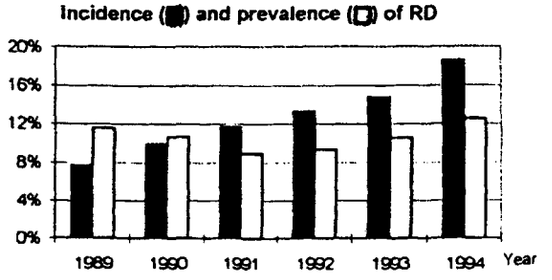
Objective: To determine trends in incidence and prevalence of RD among HIV-positive individuals living in Switzerland. RD were definded as diseases with an annual incidence of less than 1% of all registered diseases.

Methods: 6887 HIV-positive individuals were followed between January 1989 and December 1994 in the SHCS. A total of 14,997 new diseases were reported in the same time interval. Analysis of incidence and prevalence of RD.



Results: Most RD increased in frequency and all RD taken together significantly increased from 7.9% to 18.6% between 1989 and 1994, mainly due to *CMV*-retinitis (0.82% to 2.22%), other *CMV* diseases (0.86% to 1.42%) and thrombocytopenia (0.60% to 1.34%) and a sharp increase of a large spectrum of HIV-related illnesses. No significant change in prevalence was observed (Fig).

Conclusions: A significant change in incidence of RD was noticed. The prevalence however did not change significantly. Doctors caring for HIV-infected patients will be increasingly confronted with RD.

P1463 Molecular Typing of *Pneumocystis carinii* f.sp. *hominis* by Single Strand Conformation Polymorphism

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To study *Pneumocystis carinii* f.sp. *hominis* epidemiology, we have developed a molecular typing method. It consists in the amplification by PCR of four variable regions of the genome from broncho-alveolar lavages of patients, followed by the detection of their variation by the single-strand conformation polymorphism technique (SSCP). Two broncho-alveolar lavages collected at an interval of 2.5 weeks from the same patient gave the same SSCP pattern for each of the four regions suggesting that these regions of the genome are stable. Two or three different SSCP patterns with two bands, each band corresponding to one of the two single strands of the PCR product, were identified for each region. Sequencing revealed that the sequence morphs responsible for the different SSCP patterns present a single to several bps polymorphisms. Some patients were probably infected by a single strain since they showed a single sequence morph of each region. The combinations of the four sequence morphs of these patients were all different so that different strains were distinguished. Other samples generated three or four SSCP bands which were shown to correspond to the presence of two sequence morphs of the region, possibly due to co-infections. Some patients could have been co-infected since they showed two sequence morphs of at least one of the regions. Co-infections will complicate interpretation of typing data for epidemiological studies The results suggest a great diversity of *P. carinii* f.sp. *hominis* strains. Thus, the method should be useful for epidemiological studies.

P1464 Relatedness of *M. avium* Isolates Causing Invasive Infections in Swiss AIDS Patients

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Objectives: To assess the relatedness of invasive *M. avium* (MAC) isolates in AIDS patients of the Swiss HIV Cohort Study (SHCS) by using two distinct genetic tools.

Methods: A random sample of MAC isolates from all patients with invasive infections enrolled in the SHCS was chosen for the period of 1991 to 1995 from four SHCS centers. Analysis of isolates was done by pulsed-field gel electrophoresis (PFGE, AseI restriction) and restriction fragment-length polymorphism (RFLP, *Pvu*II restriction, probe: IS*1245*). Clinical and epidemiological information was obtained by retrospective chart review.

Results: First isolates from 72 patients (31% of all MAC infections) were analyzed by PFGE and RFLP. PFGE revealed 30 (42%) clustered isolates belonging to 12 clusters ranging from 2 (8 clusters) to 4 (2 clusters) patients. 7/12 clusters included patients from different centers. RFLP showed 11 (15%) clustered isolates divided in 5 clusters of 2 (4 clusters) and 3 patients. Chart review of patients with clustered isolates revealed strong suspicion of carry-over contamination in one case.

Conclusion: PFGE detected a higher number of clusters than RFLP. This could be related to the mobility of the insertion element IS*1245* detected by RFLP. Person-to-person transmission was unlikely to have occurred among the 4 SHCS centers. The clustering of isolates points to common environmental sources of MAC for Swiss AIDS patients.

P1465 Molecular Epidemiology of HIV-Associated Tuberculosis in Switzerland

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Objectives: To determine the relative contribution of reactivation of tuberculosis (TB) infection and recent transmission to the incidence of TB among HIV infected persons in Switzerland and to identify clusters of patients diseased with identical strains.

Methods: Patients with confirmed TB and isolates available who were enrolled in the Swiss HIV Cohort Study (SHCS) were eligible for this study. Isolates were genetically characterized by restriction fragment length polymorphism (RFLP). Detailed clinical and epidemiological information was obtained from the SHCS data base and retrospective chart review.

Results: Out of 7999 patients participating in the SHCS, 262 (3.2%) were diagnosed with pulmonary or extra-pulmonary TB of which 139 (49%) could be analyzed by RFLP. Of these, 38 (27%) had TB isolates with similar RFLP patterns, grouped in 13 clusters (i.e. 13 different specific RFLP patterns). Cluster size varied between 2 patients (9 clusters) and 10 (1 cluster); 8 clusters implicated patients from more than one city. Within a cluster, the time span between the first and the last TB diagnoses averaged 27 months [2–62 months]. Out of 14 patients (9%) with more than one TB episode, 13 reactivated the initial strain (identical RFLP after initial cure), and 1 was a re-infection.

Conclusions: Recent and ongoing TB transmission occurs among HIV infected patients in Switzerland and involves approximately one quarter of cases reported. Further analysis is in progress to identify risk factors for cluster cases and recent transmission of TB.

P1466 Epidemiological Surveillance of *Mycobacterium avium* Complex (MAC) Cross-Contamination in an AIDS Care Unit by Pulsed Field Gel Electrophoresis

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Objectives: cross-contamination of AIDS patients by *M. tuberculosis*, especially in a nosocomial context, is a well known and frequently reported occurrence. On the contrary, cross-contamination by MAC is a rare occurrence. Netherless, we think that the risk is not Zero; because of accumulation, in the same place, of patients with severe immunodepression. So, the aim of this study is to build in our laboratory the tool of control and diagnostic of such contamination, if any.

Patients, Strains and Methods: 0.25 strains isolated in our laboratory, from 24 patients. 17 from pulmonary sample, 8 from Blood-culture. 19 inpatients of our hospital, 5 from outside hospitals, included as control. Identification performed by hybridation of Gene-Probe® *avium-intracellulare* complex specific probe.

PFGE: All conditions slightly modified from Slutsky and all (JCM, july 94). The restriction enzyme is AsnI, recognising AT'TAAT, giving 12 to 20 bands, from 10 to 800 Kb. Electrophoresis on 1% agarose in TBE uses Gene Navigator from Pharmacia.

Results: all the strains but one have been typable,. For one strain, it has not been possible to get restriction, after several tentatives.

The similarity of the strains has been studied using Taxotron software, UPGMA method, but all the patterns were obviously different, exept in one case. In one case, the patterns were very close, with similarity percent of 90%.

These strains have been isolated from two unrelated patients, except the fact that they were hospitalised in the same unit the same week.

Conclusion: it is not possible to proof, in this case, the cross-contamination, but such observation lead us to dread MAC nosocomial contamination.

P1467 Disseminated MAC Disease in the Swiss HIV Cohort Study: Increasing Incidence, Unchanged Prognosis

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Objectives: To examine time trends for occurrence of, and survival with, disseminated *Mycobacterium avium* complex disease (DMAC) in the large Swiss HIV Cohort Study, 1987–1995.

Methods: Participants who were free of DMAC at registration were stratified by calendar period (1987–89, 1990–92, 1993–95) in which the first recorded CD4 cell count was 0–49, 50–99, or 100–199 × 10^6/L. Kaplan-Meier lifetable methods and Cox regression models were used for statistical analysis.

Results: The analysis was based on 6052 participants and 202 incident episodes of DMAC. In individuals with CD4 counts of 0–49 the cumulative incidence at two years was 9.8% (95% CI 4.4–15.2%) in 1987–89, 21.5% (15.3%–27.8%) in 1990–92 and 29.8% (20.8–38.8%) in 1993–95 compared to approximately 3% in all time periods for those with CD4 counts above 100. However, after controlling for CD4 cell count there was no significant effect of calendar period. Median survival following diagnosis of DMAC was 7.9 months with no improvement over time.

Conclusions: The increase in the incidence of DMAC is explained by the more profound level of immunosuppression of individuals enrolled in recent years. Survival following diagnosis of DMAC has not improved.

P1468 Opportunistic Infections of CNS in HIV/AIDS Patients

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Objectives: To study the aetiology and clinical signs of secondary infections of central nervous system (CNS) in HIV-positive persons.

Methods: Since 1987 134 cases of HIV infections and AIDS were diagnosed in St. Petersburg (males – 87, females – 47; age distribution: <20 years – 2%, 21–30 years – 36%, 31–40 years – 48%, 41–50 years – 13% and >50 years – 1%). All patients were under observation by neurologist and other physicians at City AIDS Centre. Every year according to clinical indications most patients (85%) were treated periodically at City Hospital for Infectious Diseases or Republican Clinical Infectious Hospital.

Results: Mild immunodeficiency was diagnosed in most cases (2A, 2B and 3A stages of infection in 89% of patients; 3B and 3C stages – in 11% of patients). Neurological signs and symptoms were found in 54% of patients. The frequent and most serious CNS lesion was chronic meningoencephalitis that was diagnosed in 13 patients: *Cryptococcus neoformans* – 5, Cytomegalovirus – 3 (plus CMV retinitis in 2 patients), Herpes simplex virus – 2, HIV – 2 (subacute HIV encephalitis and HIV dementia), *C. neoformans+Candida albicans* – 1. Ten of 13 patients died; the average duration of life in subacute cryptococcosis was 6 months after diagnosis of mycotic infection.

Conclusions: Infections of CNS are among the leading causes of death in HIV/AIDS cases. Therefore all patients should be observed regularly by neurologist for early treatment of CNS complications.

P1469 Intestinal Microsporidiosis in HIV-Infected Patients with Diarrhea in Spain

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Objectives: To study the prevalence rates of microsporidiosis and other enteric pathogens in HIV-infected patients with diarrhea in Spain. Identification of microsporidia species implicated in the process.

Methods: A prospective study of 43 AIDS patients with diarrhea was carried out. The presence of parasites, viruses and bacteria was investigated in stool samples. Microsporidia identification was made by Weber's chromotrope-based stain, IIF and PCR tests. IIF was performed by using rabbit anti-*Encephalitozoon intestinalis,* anti-*E. hellem* or anti-*E. cuniculi* sera. PCR was performed on purified DNA from specimens using *E. bieneusi-, E. intestinalis-, E. hellem-* and *E. cuniculi*-specific primers.

Results: Enteric pathogens were identified in 44.1% of patients studied. *Cryptosporidium* sp. was the most common pathogen found (16.2%), followed by microsporidia (13.9%). In all six patients with microsporidiosis, *Enterocytozoon biubeusi* was demonstrated by PCR. Five of them presented chronic diarrhea and malabsortion was shown in four. Severely depressed CD4 lymphocyte counts in peripheral blood were common to all of them.

Conclusions: Microsporidiosis is a common cause of chronic diarrhea in HIV-infected patients in Spain also. The PCR technique using specific primers is an adequate and reliable method for identifing microsporidia spores in stool samples from patients with intestinal microsporidiosis.

P1470 Risk of Toxoplasmic Encephalitis in AIDS Patients in Yugoslavia

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Objectives: To determine the frequency rate of toxoplasmic encephalitis (TE) in AIDS patients in Yugoslavia, and to analyse the contribution of age, sex, HIV transmission risk factors, CD4+ T cell counts and systemic PCP prophylaxis as risk factors for the development of TE.

Patients and Methods: Of the 399 patients diagnosed with AIDS from 1991 to 1995 in Yugoslavia, 288 patients (72%), including all with neurological abnormalities, were serologically tested for specific *Toxoplasma gondii* IgG by the Sabin-Feldman test and/or

ELISA, and IgM antibodies by the ISAgA. TE was diagnosed on the basis of both neuroradiographical (CT scan and/or MRI) findings and clinical and neuroradiographical improvement following specific antitoxoplasmosis treatment.

Results: *T. gondii*-specific IgG antibody was detected in 127 of the 288 patients tested serologically (44.1%). TE occurred in 31 patients (7.8%), significantly more often (χ^2 = 34.423, p < 0.005) among the seropositive (29/127, 22.8%) than among those seronegative (2/161, 1.24%). By survival analysis, the cumulative incidence of TE in the seropositive patients was 32.7% for 60 months (30% for 24 months). While not associated with sex (p = 0.495), age (p = 0.157), or any HIV transmission risk factor (i.v. drug use, p = 0.112; blood transfusion, p = 0.758; homosexual contacts, p = 0.219; other, p = 0.858), the risk for the development of TE increased with the decrease in the CD4+ T cell count (RR = 0.276, 95% CI = 0.1981–0.673, p = 0.0013), and was reduced in patients on systemic PCP prophylaxis (RR = 0.222, 95% CI = 0.068–0.642, p = 0.006).

Conclusions: The risk of developing TE was the highest in *T. gondii* seropositive patients with low CD4+ T cell counts who did not receive toxoplasmosis-effective prohylaxis, shown to be beneficial. Without prophylaxis, a risk existed even at 200–500 × 10^6/l CD4+ cells. Negative toxoplasmosis serology was shown to be a strong negative predictor.

P1471 Oropharyngeal Yeast Carriage in HIV-Infected Patients

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In order to determine the clinical significance of oropharyngeal candidosis (OPC) in patients infected with HIV-1, a retrospective study was done in 1700 samples from HIV-infected persons at our HIV Outpatients Clinic. Yeast carriage was determined by means of oral swabs. Yeasts were cultured quantitatively on Sabouraud's and on yeast extract containing agar plates. Colonies were identified biochemically to species level.

Yeasts were grown in 74% of HIV-positive patients, with a frequency of 92% in patients with clinical signs, and of 61% without episode(s) of OPC, respectively. Yeast colonization was remarkably higher in patients with lower CD4+ lymphocyte counts. The dominant species was *Candida albicans* (86%). Mixed infection was detected in only one patient with OPC.

Our data do not correlate with those of recent literature on the higher incidence of mixed and *non-albicans* infections, due to the ketoconazole and nystatin therapy in the previous years. On the other side, our patient population is reduced only on asymptomatic HIV-infected persons. For this reason, the recently administered fluconazole does not play important role in the increased prevalence of mixed and *non-albicans* infections.

P1472 Mucocutaneous Problems in HIV-Positive Patients: A Prospective Cohort Study

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Objectives: To determine the incidence of mucocutaneous problems in HIV-infected patients, the impact of risk groups and changing trends within the last two years.

Methods: Within 59 months we included in our study 482 patients with proven HIV infection.

Results: Our cohort included 136 women (28.2%) and 346 men. 145 patients (30.1%) belonged to the risk group of homosexuality, 31 were bisexual (6.5%), 97 heterosexual (20.1%) and 185 were i.v. drug users (38.4%). The age at the first reactive HIV-test ranged between 15 and 68 years (mean 30). HIV-related skin problems such as candida-stomatitis developed in 201 (41.7%) patients and Kaposi's sarcoma in 31 men (9% of men). The most common HIV associated dermatological problems were dry skin (232, 48.1%), tinea (210, 43.6%), seborrheic dermatitis (170, 35.3%), verrucae vulgares (139, 28.8%), folliculitis (122, 25.3%) and herpes simplex (72, 14.9%). 60 patients had condyloma acuminata (12.4%), 53 mollusca contagiosa (11%) and 23 showed bacterial infections (4.8%). 78 patients (16.2%) had a reactive syphilis serology.

Conclusions: Our data demonstrate that the most common skin problems in HIV+ patients are infectious diseases. Homosexuals had a higher incidence of Candida-stomatitis and seborrheic dermatitis. Seborrheic dermatitis which may be related to *Malassezia furfur* develops early in the disease process but has no impact on the prognosis. In contrast mollusca contagiosa and Kaposi's sarcoma indicate markedly reduced CD4 cell count. Our demographics show that the incidence of mucocutaneous problems have not changed dramatically within the last two years.

P1473 Wasting Syndrome and AIDS: Prevalence, Risk Factor and Survival in the Swiss HIV Cohort Study

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Objectives: To determine the prevalence, risk factors and survival associated with wasting syndrome as the initial AIDS-defining condition in the Swiss HIV Cohort Study (SHCS).

Methods: Patients enrolled in the SHCS and diagnosed with AIDS were eligible for this study. Those with wasting as the initial AIDS defining condition were compared to those diagnosed with another condition at the time of AIDS using univariate and multivariate logistic regression. Survival was assessed with Kaplan-Meier analysis.

Results: Out of 3124 patients eligible, 105 (3.4%) entered AIDS with wasting as the initial AIDS defining diagnosis. A large proportion, however, (42%) had at least one additional concurrent AIDS defining condition and were excluded from this analysis. Patients with wasting (61) were similar to those with another AIDS defining illness with respect to gender (2.1% vs 1.6% for male and female), age, region of origin and year of AIDS diagnosis. IV drug users, however, were 3.5 times more likely to be diagnosed with wasting than patients infected through homosexual contact. This increased risk was even larger when confounding variables were adjusted for (Odds ratio: 4.2; 95% CI: 3.4–4.9). Median survival time after AIDS was 13 months for wasting patients and 17 months for the others (p log rank = 0.19) and this difference was mainly due to early wasting syndrome associated death after AIDS.

Conclusions: Wasting syndrome as an AIDS defining illness is rare in the SHCS. Drug abusers have an increased risk of being diagnosed with wasting at the time of AIDS. Patterns of wasting-associated mortality need to be explored further.

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Withdrawn.